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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,371	10/05/2000	Rodney S. Tucker	10001757-1	2577

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AGILENT TECHNOLOGIES
Legal Department, 51U-PD
Intellectual Property Administration
P.O. Box 58043
Santa Clara, CA 95052-8043

EXAMINER

KIM, DAVID S

ART UNIT	PAPER NUMBER
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2633

10

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/684,371

Applicant(s)

TUCKER ET AL.

Examiner

David S. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 8, 16-18, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8, 16-18, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Drawings

1. Applicant's compliance with the objections raised in the previous Office Action (Paper No. 8, mailed on 14 October 2003) is noted and appreciated. The drawings were received on 14 January 2004. These drawings are acceptable. Accordingly, the objections are withdrawn.

Specification

2. Applicant's compliance with the objections raised in the previous Office Action (Paper No. 8, mailed on 14 October 2003) is noted and appreciated. However, the disclosure is objected to because of the following informalities:

On page 17, line 3, "Fig. 6" is used where "Fig. 10" may be intended.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 1-4, 7-8, 16-18, and 21-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Graves et al. (U.S. Patent No. 6,115,162) and Tolson (U.S. Patent No. 6,208,850 B1).

Regarding claim 1, the admitted prior art discloses an optical heterodyne detection system (Fig. 1) comprising the first optical path, the second optical path, the optical combining means, the third optical path, and the photodetector.

The admitted prior does not expressly disclose the optical pre-selector and the means for adjusting said optical pre-selector passband. However, optical pre-selectors are well known and common in the field of heterodyne systems. Graves et al. teaches such a pre-selector (Graves et al., filter 62 in Fig. 4). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include an optical pre-selector in the heterodyne system of the admitted prior art. One of ordinary skill in the art would have been motivated to do this to isolate the frequency band of interest (Graves et al., col. 2, line 67 – col. 3, line 1). Additionally, means for adjusting the passband of pre-selectors is also well known and common in the field of heterodyne systems. Tolson teaches such means (Tolson, Fig. 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate means for adjusting the passband of the pre-selector of the admitted prior art in view of Graves et al. One of ordinary skill in the art would have been motivated to do this the selectivity of such pre-selectors largely determines the performance of the system (Tolson, col. 1, lines 26-28). A minimum bandwidth for the pre-selector, consistent with adequate reception of the wanted signal would enhance receiver performance

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considerably (Tolson, col. 1, lines 28-31). The teachings of Tolson enable such a minimum bandwidth (Tolson, col. 1, lines 35-38).

Regarding claim 2, the admitted prior art in view of Graves et al. and Tolson discloses a phase modulator (Tolson, phase change imparted by bandpass filter in abstract) being responsive to said means for adjusting (Tolson, Fig. 1) and being located along an optical path (Tolson, note that input path to filter 3 is before filter 3 in Fig. 1) that is before said optical pre-selector.

Regarding claim 3, the admitted prior art in view of Graves et al. and Tolson does not expressly disclose real-time measuring. However, real-time measuring is well known and common in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate real-time measuring in the system of the admitted prior art in view of Graves et al. and Tolson. One of ordinary skill in the art would have been motivated to do this to provide the most updated status of the system during operation, thus enabling a quicker and more dynamic response to changes in the system conditions.

Regarding claim 4, the admitted prior art in view of Graves et al. and Tolson does not expressly disclose the clock source. However, clock sources are extremely well known and conventional in the art. One of ordinary skill in the art would have been motivated to do this to provide appropriate synchronization of various elements in the system of the admitted prior art in view of Graves et al. and Tolson.

Regarding claim 7, the admitted prior art in view of Graves et al. and Tolson discloses the pre-selector arranged to filter said input signal within said first optical path (Graves et al., Fig. 4; Tolson, Fig. 1).

Regarding claim 8, the admitted prior art in view of Graves et al. and Tolson discloses the passing and the interacting (Tolson, Fig. 1, abstract) and the tapping

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(Tolson, note coupler 8 in Fig. 1). The admitted prior art in view of Graves et al. and Tolson does not expressly disclose the delaying. The delaying of signals of any kind is well known and common throughout the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include the delaying. One of ordinary skill in the art would have been motivated to do this to provide the common and conventional functionality of precise synchronization.

Regarding claims 16-18 and 21-22, claims 16, 17, 18, 21, and 22 are method claims that correspond to system claims 1, 2, 4, 7, and 8, respectively. Therefore, the recited means in system claims 1-2, 4, and 7-8 read on the corresponding steps in method claims 16-18 and 21-22.

Response to Arguments

6. Applicant's arguments filed on 14 January 2004 (Paper No. 9) have been fully considered but they are not persuasive. Applicant presents four salient points.

Regarding the first point, Applicant states,

"Because neither Graves nor Tolson teach or suggest an optical pre-selector 'having a passband that tracks the frequency of said swept local oscillator signal' as recited in claim 1, Applicants assert claim 1 is not rendered obvious from the admitted prior art in view of Graves and Tolson" (Paper No. 9, p. 11, last sentence).

Examiner respectfully notes that Graves et al. does teach an optical pre-selector (filter 62 in Fig. 4) having a passband (Fig. 6) that tracks the frequency (col. 4, lines 21-31) of a swept (col. 4, lines 21-31, note that the local oscillator is 'agile' and that the LO and the pre-selector 'track together' as the radio is tuned; such tuning indicates a sweep through the frequency range) local oscillator signal.

Examiner respectfully notes that Tolson also teaches an optical pre-selector (filter 3 in Fig. 1) having a passband (filter 3 is a 'band pass' filter) that tracks the frequency (the center frequency of the passband of filter 3 is driven towards the frequency of the

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LO, col. 2, lines 27-28; tracking in col. 1, lines 35-38) of a swept (note that the greater context of Tolson is directed to FM receivers, which receive a *range* of frequencies; channel selection requires the tuning of the LO to a desired channel *before* the LO frequency is set to that desired channel; such tuning indicates a sweep through the frequency range) local oscillator signal.

In view of these teachings of Graves et al. and Tolson, Examiner finds it difficult to consider Applicant's first point to be persuasive.

Regarding the second point, Applicant states,

"Tolson teaches an electrical system that includes an electrical signal filter. Tolson does not teach or suggest a local oscillator signal that has optically interacted with said optical pre-selector' as recited in claim 1" (Paper No. 9, p. 11, last sentence).

Examiner respectfully clarifies that Tolson was applied for its teachings on heterodyne principles, common to communication media that carry information via sinusoidal waves. While Tolson explicitly teaches an electrical system, the teachings on heterodyne principles therein apply to other communication media that carry information via sinusoidal waves. Such media include electromagnetic signals, which include electrical and optical signals. Accordingly, one of ordinary skill in the art would recognize that Tolson's teachings on heterodyne principles would apply to the optical heterodyne apparatus of the admitted prior art in view of Graves et al. More exactly, electrical interactions of Tolson would have their analogue as optical interactions in the optical apparatus of the admitted prior art in view of Graves et al. and Tolson. Thus, Examiner finds it difficult to consider Applicant's second point to be persuasive.

Regarding the third point, Applicant states,

"While Tolson does refer to a phase change that is imparted by the bandpass filter, Tolson does not teach or suggest a phase modulator...Applicants assert that because Tolson does not teach a 'phase modulator,' claim 2 is not rendered obvious from the admitted prior art in view of Graves and Tolson" (Paper No. 9, p. 12, last paragraph – p. 13, 1st paragraph).

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Examiner respectfully notes that the term “modulate” is relatively broad in scope. Generally, a “phase modulation” includes the broad meaning of a variation or change in phase. Accordingly, an object that induces a variation or change in phase is a “phase modulator.” If Applicant notes a difference between the phase modulator/changer of Tolson and the phase modulator of Applicant’s invention that patentably distinguishes the two from each other, Examiner encourages Applicant to adjust the claim language to reflect such a distinguishing difference. Without such an adjustment, Examiner finds it difficult to consider Applicant’s third point to be persuasive.

Regarding the fourth point, Applicant states,

“With regard to claim 8, the Office action states that it would have been obvious to include a tap ‘to isolate the local oscillator signal to provide more controlled phase modulation’ and to include a delay ‘to provide more precise synchronization for the interacting.’ Applicants assert that neither Graves not Tolson teach or suggest the elements of claim 8” (Paper No. 9, p. 13, middle paragraph).

Examiner respectfully notes the adjustment of the rejection of claim 8 such that the Tolson does show the means for tapping (see treatment of claim 8 above). Examiner also respectfully notes that the delaying limitation in claim 8 is not expressly disclosed in the admitted prior art in view of Graves et al. and Tolson. However, Examiner also points out that the delaying of signals of *any* kind is well known and common throughout the art. Accordingly, an obviousness rejection was made. If Applicant considers the delaying of Applicant’s invention to be a limitation that patentably distinguishes it from prior art teachings, Examiner encourages Applicant to further explain the inventive aspects of Applicant’s delaying. Otherwise, Examiner finds it difficult to consider Applicant’s fourth point to be persuasive.

Summarily, Applicant’s arguments are not persuasive. Accordingly, Examiner respectfully maintains the standing rejections.

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Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 703-305-6457. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK


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